

**CLAIMS**

1. Cooling channel length for a rotary electrical machine, the channel length comprising at least one conduit (11, 111) placed along at least part of the machine to be cooled and having an input axis ( $A_E$ ) and an output axis ( $A_S$ ), as well as at least one input coupling (12, 112) and at least one output coupling (13, 113) for a cooling fluid and between which the conduit or conduits (11, 111) extend, characterised in that the input coupling or couplings (12, 112) and the output coupling or couplings (13, 113) are each oriented at least approximately along the orientation of the corresponding input axis ( $A_E$ ) or output axis ( $A_S$ ) of the conduit (11, 111) and have, all along their longitudinal extents, a constant area of their cross section of flow.
2. Length according to claim 1, characterised in that the conduit (11) is a helical conduit having at least one turn intended to surround at least part of the machine to be cooled and having respectively an input axis and an output axis oriented along a tangential axis or plane passing through a respectively input and output circumferential zone of the length, and at least one input coupling (12) and at least one output coupling (13).
3. Length according to claim 2, characterised in that the input coupling (12) and the output coupling (13) are disposed, in an axial view of the length, with a small angular difference ( $\alpha$ ) between the two couplings (12, 13).

4. Length according to claim 2, characterised in that the helical conduit (11) is formed by two complementary walls, an internal wall and an external wall, the external wall being formed by a cooling fluid envelope conformed so as to grant to the cooling fluid a helical path with a single turn.

5. Length according to claim 4, characterised in that it comprises a single part joining the input coupling (12) and the output coupling (13), these two couplings being separated from each other by a changing low wall (M) conformed so as to give a favoured flow direction to the cooling fluid.

6. Length according to claim 1, characterised in that it comprises two adjacent turns (11A, 11B) with an input coupling (12A) in common and an individual output coupling (13A, 13B) for each turn (11A, 11B).

7. Length according to claim 1, characterised in that it comprises two adjacent turns (11A, 11B) with an individual input coupling (12A, 12B) each turn (11A, 11B) and a common output coupling (13A),

8. Length according to claim 1, characterised in that it comprises conduits (111) parallel to each other and disposed in parallel around the longitudinal axis of the machine to be cooled, the input and output couplings being disposed coaxially with respect to the conduit to which they are allocated.

9. Rotary electrical machine, characterised in that it comprises a cooling length according to claim 1.